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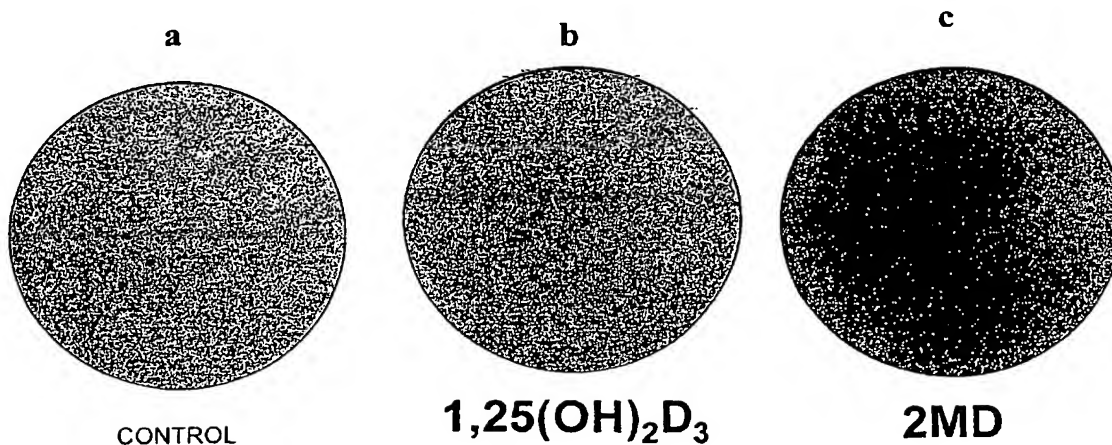
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- Published:**
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: USE OF CARBON-2-MODIFIED-VITAMIN D ANALOGS TO INDUCE THE FORMATION OF NEW BONE



(57) **Abstract:** It has been discovered that the 2-carbon-modified derivatives of 1 α ,25-dihydroxyvitamin D₃ specifically stimulate osteoblasts to form new bone. The ability of the 2-carbon-modified vitamin D analogs to stimulate new bone formation suggest that these compounds can be used where synthesis of new bone is required. Thus, these compounds can be used either systemically or locally to stimulate the growth of bone transplants, to increase the rate of fracture healing and thereby reduce the time required for the healing of fractures, the stimulation of bone growth when required for replacement surgery, and also for the growth of bone to implants or other devices required to maintain the skeleton or teeth in the proper positions.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/07443

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 A61K31/59 A61K31/593 A61P3/14 A61P3/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, MEDLINE, EMBASE, BIOSIS, CHEM ABS Data, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 74766 A (WISCONSIN ALUMNI RES FOUND) 11 October 2001 (2001-10-11) page 6 -page 7; claim 31	1-10, 20, 23-28 1-20
Y	---	
X	WO 98 41501 A (WISCONSIN ALUMNI RES FOUND) 24 September 1998 (1998-09-24) abstract; claims 1, 11-16, 29, 36-45 page 29-30 page 7, line 23, 24 page 11, line 1-4	1-10, 20, 23-28 1-20
Y	---	
X	WO 02 05823 A (WISCONSIN ALUMNI RES FOUND) 24 January 2002 (2002-01-24) abstract page 3 -page 5, line 7 page 10 -page 11	1-10, 20, 23-28

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

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X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

11 July 2003

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29/07/2003

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INTERNATIONAL SEARCH REPORT

Intel onal Application No

PCT/US 03/07443

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 41500 A (WISCONSIN ALUMNI RES FOUND) 24 September 1998 (1998-09-24) page 6, line 26; claims 1,11-21,28-35	1-9,21, 23-28
X	WO 02 05824 A (WISCONSIN ALUMNI RES FOUND) 24 January 2002 (2002-01-24) page 3, line 5 -page 5 page 8-10	1-9,21, 23-28
X	SICINSKI ET AL: "New 1alpha-25-Dihydroxy-19-norvitamin D3 Compounds of High Biological Activity: Synthesis and Biological Evaluation of 2-Hydroxymethyl, 2-Methyl, and 2-Methylene Analogues" JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY. WASHINGTON, US, vol. 41, 22 October 1998 (1998-10-22), pages 4662-4674, XP002106465 ISSN: 0022-2623 abstract	1,10,20, 21,23-28
Y	WO 97 11053 A (WISCONSIN ALUMNI RES FOUND ;DELUCA HECTOR F (US); SCHNOES HEINRICH) 27 March 1997 (1997-03-27) page 5 -page 8	1-9, 11-19
P,X	SHEVDE NIRUPAMA K ET AL: "A potent analog of 1alpha,25-dihydroxyvitamin D3 selectively induces bone formation." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA. UNITED STATES 15 OCT 2002, vol. 99, no. 21, 15 October 2002 (2002-10-15), pages 13487-13491, XP002247340 ISSN: 0027-8424 abstract	1-10,20, 23-28

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/07443

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 1-28 are directed to a method of treatment of the human body, the search has been carried out and based on the alleged effects of the compounds.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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